

CLAIMS:

1. A method for the preparation of a modified carrier for a catalyst to be used for the vapor phase epoxidation of alkene, comprising:

- 5 a) impregnating a preformed alpha-alumina carrier with at least one modifier selected from among alkali metal silicates and alkaline earth metal silicates;
 b) drying said impregnated carrier; and
 c) calcining said dried carrier.

2. The method of claim 1, wherein said modifier is selected from a group consisting of sodium silicates, lithium silicates and potassium silicates or mixtures thereof.

10 3. The method of claim 1, wherein said modifier is a sodium silicate with stoichiometry, $\text{Na}_2\text{O}-2.6 \text{ SiO}_2$.

4. The method of claim 1, wherein said drying is carried out at a temperature not exceeding about 250 degrees C. for at least the first two hours following said impregnation.

15 5. A method for the preparation of a catalyst to be used for the vapor phase epoxidation of alkene, comprising:

- a) impregnating a preformed alpha-alumina carrier with at least one modifier selected from among alkali metal silicates and alkaline metal earth silicates
 b) drying said impregnated carrier;
 c) calcining said dried carrier; and
20 d) depositing silver catalytic material on said dried carrier.

6. The method of claim 5 wherein at least one efficiency enhancing promoter is deposited on said preformed alpha-alumina.

25 7. The method of claim 6 wherein said efficiency enhancing promoter is selected from a group consisting of at least one alkali metal, alkaline earth metal or oxyanion of an element, other than oxygen, having an atomic number of 5 to 83 and being selected from groups 3b through 7b and 3a through 7a of the Periodic Table.

8. The method of claim 6 wherein the said efficiency enhancing promoter is a salt of a member of a redox-half reaction pair.

30 9. The method of claim 6 wherein said efficiency enhancing promoter is a rhenium component.

10. The method of claim 1 or 5 where in said alkene is ethylene.

11. A modified carrier for a catalyst to be used for the vapor phase epoxidation of alkene prepared by a method comprising:

a) impregnating a preformed alpha-alumina carrier with at least one modifier selected from among alkali metal silicates and alkaline earth metal silicates;

5 b) drying said impregnated carrier; and

c) calcining said dried carrier.

12. A novel catalyst to be used for the vapor phase epoxidation of alkene prepared by a method comprising:

a) impregnating a preformed alpha-alumina carrier with at least one modifier selected from among alkali metal silicates and alkaline earth metal silicates;

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b) drying said impregnated carrier;

c) calcining said dried carrier; and

d) depositing silver catalytic material on said dried carrier

13. The method of claim 1 wherein the preformed alpha-alumina carrier comprises a platelet/fluoride-containing type alumina having at least 95% by weight alpha-alumina, a unique interlocking platelet morphology, and a surface area of at least about 0.5 m²/g, a pore volume of at least about 0.5 cc/g, and a median pore diameter between about 1 to 25 microns.

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14. The method of claim 13 wherein the modifier is a sodium silicate with stoichiometry, Na₂O-2.6 SiO₂.

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15. The method of claim 1 or 13 wherein said modified carrier is washed after calcination.